STIC Search Report
EIC 2100

USPTO

TO: **Kuen S Lu**
Location: **RND 3B02**
Art Unit: **2167**
Monday, November 14, 2005

Case Serial Number: **09/965393**

From: **Ruth E. Spink**
Location: **EIC 2100**
RND-4B31
Phone: **23524**

Ruth.spink@uspto.gov

Search Notes

Kuen – Attached is the foreign patent and NPL search for the above referenced case. I tagged a few that I thought might be of particular interest. Be sure to let me know if you would like for me to refocus the search.

Ruth

sira
Search and Information
Resources Administration

Today's Date: 11/14/2005

What date would you like to use to limit the search?
Priority Date: 9/27/2001   Other:

Name Kuen S. Lu

AU 2167   **Examiner #** 7999/

Room # RAN 3B02   **Phone** 2414   571-272-4114

Serial # 09/1965,393

Format for Search Results (Circle One):
(PAPER)   DISK   EMAIL

Where have you searched so far?
(USP)   DWPI   (EPO)   (JPO)   (ACM)   IBM TDB   Citeseer Sun   IEEE   INSPEC   SPI   Other Google, Oracle

Is this a "Fast & Focused" Search Request? (Circle One) (YES)   NO

A "Fast & Focused" Search is completed in 2-3 hours (maximum). The search must be on a very specific topic and meet certain criteria. The criteria are posted in EIC2100 and on the EIC2100 NPL Web Page at http://ptoweb/patents/stic/stic-tc2100.htm.

Please complete by 12:30 pm ᴬᵐ 11/14/05 THANKS

What is the topic, novelty, motivation, utility, or other specific details defining the desired focus of this search? Please include the concepts, synonyms, keywords, acronyms, definitions, strategies, and anything else that helps to describe the topic. Please attach a copy of the abstract, background, brief summary, pertinent claims and any citations of relevant art you have found.

the very concept :

3 writes US
2 writes

1. (Currently Amended) A method for writing file systems write data operations to a

storage medium comprising the steps of:

storing a file systems write data operation in a first temporary data store;

mirroring the file systems write data operation in a second temporary data store; and

deleting the mirrored file systems write data operation from the second temporary data

store in the case when upon receiving of a signal indicating that the file systems write data

operation is successfully written from the first temporary data store to the storage medium.

STIC Searcher _____   **Phone** _____

Date picked up _____   **Date Completed** _____

Patent bib

```
Set      Items    Description
S1     3687459    STORE? ? OR STORAGE OR DRIVE? ? OR DISK? ? OR DISC? ?
S2      153518    (TEMPORARY OR SECONDARY OR BACKUP OR BACK?()UP OR STORE OR
                  STORAGE)()(DEVICE? ? OR APPARATUS? ? OR SYSTEM? ? OR SUBSYSTE-
                  M? ? OR UNIT? ? OR DRIVE? ? OR DISK? ? OR DISC? ?)
S3      944622    THREE OR THIRD OR 3RD OR TERTIARY
S4        6550    (SECONDARY OR SECOND OR 2ND OR ALTERNATIVE OR ANOTHER OR A-
                  DDITIONAL)(3N)S2
S5        3712    (PLURAL? OR MORE()THAN()ONE OR MANY OR SEVERAL OR MULTIPLE?
                  ? OR MULTIPLICITY  OR NUMEROUS)(3N)S2
S6      214889    MIRROR?
S7        2404    (DELETE? ? OR DELETING OR ERASE? ? OR ERASING OR REMOVE? ?
                  OR REMOVING)(5N)(S6 OR COPY OR COPIES)
S8        6722    (SUCCESS? OR COMPLETE OR COMPLETED OR (ERROR? ? OR CORRUPT-
                  ?)(2N)(FREE OR NO OR "NOT"))(5N)(S6 OR COPY OR COPIES OR COPY-
                  ING OR WRITE OR WRITING OR WRITTEN)
S9           0    (S4 OR S5) AND S6 AND S7 AND S8
S10        114    (S4 OR S5) AND S6
S11         81    S10 AND IC=G06F
S12          2    S10 AND IC=G06F-007
S13          1    (S4 OR S5) AND S6 AND (S7 OR S8)
S14       7897    S3 (3N) (STORE? ? OR STORAGE)
S15          0    S14 AND S6 AND S7 AND S8
S16          0    S14 AND S6 AND (S7 OR S8)
S17         50    S14 AND S6
S18         14    S17 AND IC=G06F
S19         14    IDPAT (sorted in duplicate/non-duplicate order)
S20         14    IDPAT (primary/non-duplicate records only)
File 347:JAPIO Nov 1976-2005/Jul(Updated 051102)
         (c) 2005 JPO & JAPIO
File 350:Derwent WPIX 1963-2005/UD,UM &UP=200572
         (c) 2005  Thomson Derwent
```

012064466   **Image available**
WPI Acc No: 1998-481377/199841
XRPX Acc No: N98-375514
   Method converting memory stored on several data storage devices **to**
   2nd **memory structure for RAID storage management - divides storage space
   in array into sets of blocks which are formatted independently as based
   on different memory structures which are non-redundant,** mirrored **and**

   parity protected, RAID 4 or 5
Patent Assignee: IBM CORP (IBMC); INT BUSINESS MACHINES CORP (IBMC)
Inventor: STYCZINSKI D A
Number of Countries: 006 Number of Patents: 008
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9838568	A1	19980903	WO 97US8985	A	19970528	199841	B
US 5960169	A	19990928	US 97805652	A	19970227	199947	
CN 1247608	A	20000315	CN 97181961	A	19970528	200031	
JP 2000511318	W	20000829	WO 97US8985	A	19970528	200045	
			JP 98537604	A	19970528		
KR 2000070207	A	20001125	WO 97US8985	A	19970528	200131	
			KR 99706433	A	19990715		
TW 436689	A	20010528	TW 98101865	A	19980211	200172	
JP 3266277	B2	20020318	WO 97US8985	A	19970528	200222	
			JP 98537604	A	19970528		
KR 321843	B	20020202	WO 97US8985	A	19970528	200255	
			KR 99706433	A	19990715		

Priority Applications (No Type Date): US 97805652 A 19970227
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9838568	A1	E	59	G06F-007/22	

   Designated States (National): CN JP KR SG

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5960169	A			G06F-011/00	
CN 1247608	A			G06F-007/22	
JP 2000511318	W		69	G06F-003/06	Based on patent WO 9838568
KR 2000070207	A			G06F-007/22	Based on patent WO 9838568
TW 436689	A			G06F-012/00	
JP 3266277	B2		25	G06F-003/06	Previous Publ. patent JP 200011318
					Based on patent WO 9838568
KR 321843	B			G06F-007/22	Previous Publ. patent KR 2000070207
					Based on patent WO 9838568

Abstract (Basic): WO 9838568 A
     The method identifies a set of blocks (903, 905, 907, 909, 911 and
   913) of data to be converted. Each block of the set is stored on a
   different one of the **several** data **storage devices** . The set has
   several pairs of blocks, with both blocks of each pair containing
   identical data.
     A first block of the set is selected and designated as a parity
   block. A block is selected from each pair of blocks of the set which
   does not include the first block. Each block selected from each pair of
   blocks of the set which does include the first block is designated as
   available for storage of replacement data.
     USE - Relates to digital storage systems and to management of
   redundant array of independent storage devices, referred to as RAID.
     ADVANTAGE - Provides more flexible storage subsystem for computer
   system, and enhances ability of storage subsystem of computer system to
   be reconfigured to meet needs of user of computer system
Title Terms: METHOD; CONVERT; MEMORY; STORAGE; DATA; STORAGE; DEVICE;
   MEMORY; STRUCTURE; RAID; STORAGE; MANAGEMENT; DIVIDE; STORAGE; SPACE;

008777629   **Image available**
WPI Acc No: 1991-281646/199138
Related WPI Acc No: 1991-281651; 1991-325398; 1991-353965
XRPX Acc No: N91-215268
  **Two level redundant disc drive controller system - switches routing
  between controlled to maintain operation in event of malfunction in one
  controller**
Patent Assignee: MICRO TECHNOLOGY INC (MICR-N); EMC CORP (EMCE-N); SF2 CORP
  (SFTW-N); MICRO TECHNOLOGY CORP (MICR-N)
Inventor: GAJJAR K; GLIDER J S; HENSON L P; IDLEMAN T E; JAFFE D H; KOONTZ
  R S; POWERS D T; GLIDER J; HENSON L; KOONITZ R; JOHNSON H S
Number of Countries: 033 Number of Patents: 018
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9113399	A	19910905				199138	B
AU 9174770	A	19910918				199150	
AU 9175846	A	19910918				199150	
AU 9176718	A	19911030				199205	
AU 9176886	A	19911127				199210	
US 5134619	A	19920728	US 90505622	A	19900406	199233	
US 5140592	A	19920818	US 90488749	A	19900302	199236	
			US 90505622	A	19900406		
			US 90506703	A	19900406		
			US 90601482	A	19901022		
US 5166939	A	19921124	US 90488749	A	19900302	199250	
EP 517857	A1	19921216	EP 91907076	A	19910228	199251	
			WO 91US1276	A	19910228		
US 5212785	A	19930518	US 90506703	A	19900406	199321	
US 5274645	A	19931228	US 90488749	A	19900302	199401	
			US 90505622	A	19900406		
			US 90506703	A	19900406		
			US 90601482	A	19901022		
			US 92872560	A	19920423		
JP 6500186	W	19940106	JP 91506558	A	19910228	199406	
			WO 91US1276	A	19910228		
US 5285451	A	19940208	US 90505622	A	19900406	199407	
			US 92914662	A	19920715		
EP 517857	A4	19950607	EP 91907076	A	19910000	199616	
US 5651110	A	19970722	US 90506703	A	19900406	199735	
			US 9318983	A	19930218		
			US 95422005	A	19950412		
EP 517857	B1	19981223	EP 91907076	A	19910228	199904	
			WO 91US1276	A	19910228		
DE 69130669	E	19990204	DE 630669	A	19910228	199911	
			EP 91907076	A	19910228		
			WO 91US1276	A	19910228		
CA 2081365	C	19990622	CA 2081365	A	19910228	199944	
			WO 91US1276	A	19910228		

Priority Applications (No Type Date): US 90601482 A 19901022; US 90488749 A
  19900302; US 90505622 A 19900406; US 90506703 A 19900406; US 92872560 A
  19920423; US 92914662 A 19920715; US 9318983 A 19930218; US 95422005 A
  19950412
Cited Patents: Jnl.Ref; US 4467421; US 4722085; US 4825403; US 4849929; US
  4899342; US 4914656; EP 369707; US 4697232; US 4761785
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9113399	A		111		

    Designated States (National): AT AU BB BG BR CA CH DE DK ES FI GB HU JP
    KP KR LK LU MC MG MW NL NO RO SD SE SU
    Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LU NL OA SE

```
US 5134619      A      24 G06F-011/10
US 5140592      A      56 G06F-011/20    CIP of application US 90488749
                                         CIP of application US 90505622
                                         CIP of application US 90506703
US 5166939      A      18 G06F-007/22
EP 517857       A1 E  111 G06F-007/22    Based on patent WO 9113399
    Designated States (Regional): DE FR GB IT
US 5212785      A      17 G06F-013/12
US 5274645      A      54 G06F-011/20    CIP of application US 90488749
                                         CIP of application US 90505622
                                         CIP of application US 90506703
                                         Cont of application US 90601482
JP 6500186      W     111 G06F-003/06    Based on patent WO 9113399
US 5285451      A      22 G06F-011/10    Cont of application US 90505622
                                         Cont of patent US 5134619
US 5651110      A      18 G06F-013/14    Cont of application US 90506703
                                         Cont of application US 9318983
                                         Cont of patent US 5212785
EP 517857       B1 E     G06F-007/22     Based on patent WO 9113399
    Designated States (Regional): DE FR GB IT
DE 69130669.    E        G06F-007/22     Based on patent EP 517857
                                         Based on patent WO 9113399
CA 2081365      C  E      G06F-011/10    Based on patent WO 9113399
```

Abstract (Basic): WO 9113399 A
   The system has controllers to control the data flow to and from the
external source. Memory devices are divided into groups where each
group is controlled by at least two controllers to provide redundancy
back-up. Data handlers are coupled to controllers for disassembling
data into data blocks to be written across a group of memory devices.
   Error detectors receive data from the controller calculate at
least one error detection term for each group and transmit the error
detection term to an error code storage device in the memory groups.
   USE/ADVANTAGE - In interfacing computer to external storage
devices. High bandwidth. High operation rate. High reliability. (111pp
   Dwg.No.3/25)
Title Terms: TWO; LEVEL; REDUNDANT; DISC; DRIVE; CONTROL; SYSTEM; SWITCH;
  ROUTE; CONTROL; MAINTAIN; OPERATE; EVENT; MALFUNCTION; ONE; CONTROL
Derwent Class: T01
International Patent Class (Main): G06F-003/06; **G06F-007/22** ; G06F-011/10;
  G06F-011/20; G06F-013/12; G06F-013/14
International Patent Class (Additional): G11B-020/18; H03M-013/00
File Segment: EPI

015250668   **Image available**
WPI Acc No: 2003-311594/200330
Related WPI Acc No: 1993-152025; 1993-404302; 1994-248718; 1994-358517;
   1998-260868; 1999-243439; 2000-328326; 2001-326639; 2003-327764;
   2003-830438; 2004-355455
XRPX Acc No: N03-248052
   Remote data mirroring **system for computer based database management
   system, transfers data from primary** storage   system **to** secondary
   storage   system **while storing data in primary system based on service
   information**
Patent Assignee: ALTERESCU B (ALTE-I); CASTEL D (CAST-I); SHKLARSKY G G
   (SHKL-I); VISHLITZKY N (VISH-I); YANAI M (YANA-I); EMC CORP (EMCE-N)
Inventor: ALTERESCU B; CASTEL D; SHKLARSKY G G; VISHLITZKY N; YANAI M;
   CASTEL D D C
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20020194442	A1	20021219	US 9352039	A	19930423	200330	B
			US 96654511	A	19960528		
			US 9861708	A	19980417		
			US 2000709814	A	20001110		
			US 2002224211	A	20020820		
US 6625705	B2	20030923	US 9352039	A	19930423	200364	
			US 96654511	A	19960528		
			US 9861708	A	19980417		
			US 2000709814	A	20001110		
			US 2002224211	A	20020820		

Priority Applications (No Type Date): US 96654511 A 19960528; US 9352039 A
   19930423; US 9861708 A 19980417; US 2000709814 A 20001110; US 2002224211
   A 20020820
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020194442	A1		12	G06F-012/16	CIP of application US 9352039
					Cont of application US 96654511
					Div ex application US 9861708
					Div ex application US 2000709814
					CIP of patent US 5544347
					Cont of patent US 5742792
					Div ex patent US 6173377
US 6625705	B2			G06F-012/16	CIP of application US 9352039
					Cont of application US 96654511
					Div ex application US 9861708
					Div ex application US 2000709814
					CIP of patent US 5544347
					Cont of patent US 5742792
					Div ex patent US 6173377

Abstract (Basic): US 20020194442 A1
      NOVELTY - The primary storage system (14) starts writing data by
   initially storing data on a cache memory (28) in response to command
   from a host computer (12). The data is transferred to data storage
   devices (20,48) of primary and **secondary   storage   systems** (14,46)
   based on the service information communicated between controllers
   (16,44) of the storage systems through processors (34,62).
      USE - For managing databases related to banks, insurance companies,
   stock markets, etc., from natural and artificial disasters.
      ADVANTAGE - Ensures **complete   copying** of notified data without
   any errors due to autonomous host independent control of remote storage
   system.

DESCRIPTION OF DRAWING(S) - The figure shows a block diagram of
remote data **mirroring** system.
    Host computer (12)
    Storage systems (14,46)
    Controllers (16,44)
    Data storage devices (20,48)
    Cache memory (28)
    Processors (34,62)
    pp; 12 DwgNo 1/4
Title Terms: REMOTE; DATA; **MIRROR** ; SYSTEM; COMPUTER; BASED; DATABASE;
  MANAGEMENT; SYSTEM; TRANSFER; DATA; PRIMARY; STORAGE; SYSTEM; SECONDARY;
  STORAGE; SYSTEM; STORAGE; DATA; PRIMARY; SYSTEM; BASED; SERVICE;
  INFORMATION
Derwent Class: T01
International Patent Class (Main): G06F-012/16
International Patent Class (Additional): H02H-003/05
File Segment: EPI

20/5/1   (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2005 Thomson Derwent. All rts. reserv.

~Wrong date~ (handwritten)

017313800   **Image available**
WPI Acc No: 2005-637433/200565
XRPX Acc No: N05-522694
  Daisy-chained device- mirroring **architecture, has two nodes that is
  operable under normal circumstances to forward writes received to one of
  nodes and third node via respective main links**
Patent Assignee: COCHRAN R A (COCH-I); DUVEKOT M (DUVE-I)
Inventor: COCHRAN R A; DUVEKOT M
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20050193179	A1	20050901	US 2004787161	A	20040227	200565	B

Priority Applications (No Type Date): US 2004787161 A 20040227
Patent Details:

Patent No	Kind Lan Pg	Main IPC	Filing Notes
US 20050193179	A1 20	G06F-012/16	

Abstract (Basic): US 20050193179 A1
     NOVELTY - The architecture has primary storage node (90) configured
to **mirror** data on an entity representing secondary **storage** node
(100). A **tertiary   storage** node (110) is coupled via a main link to
the node (90). A quaternary storage node (120) is coupled via another
link to the node (110). Each node (90,110) is operable under normal
circumstances to forward writes received to the nodes (110,120) via the
respective links.
     DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a
method of operating a daisy-chained device- **mirroring** architecture
that includes a storage node.
     USE - Daisy-chained device- **mirroring** architecture.
     ADVANTAGE - The architecture tolerates a single point of failure
(SPOF) in exchange for slightly increased downstream storage node
responsibility.
     DESCRIPTION OF DRAWING(S) - The drawing shows a multi-site
hierarchical pseudo- cascaded synchronous and asynchronous **mirroring**
variety of data storage architecture.
     Primary storage node (90)
     Secondary storage node (100)
     Tertiary   storage node (110)
     Quaternary storage node (120)
     Standby storage node shunting link (130)
     pp; 20 DwgNo 2/6
Title Terms: DAISY; CHAIN; DEVICE; **MIRROR** ; ARCHITECTURE; TWO; NODE;
  OPERATE; NORMAL; CIRCUMSTANCE; FORWARD; WRITING; RECEIVE; ONE; NODE;
  THIRD; NODE; RESPECTIVE; MAIN; LINK
Derwent Class: T01
International Patent Class (Main): **G06F-012/16**
File Segment: EPI

Wrong date

016764936   **Image available**
WPI Acc No: 2005-089212/200510
XRPX Acc No: N05-077918
   Data managing method for use in network computing environment, involves
   **copying updates from one storage system to another storage system that is
   in remote location, after reconfiguring network resources**
Patent Assignee: KERN R F (KERN-I); LUDVIG R W (LUDV-I); PETERSEN D B
   (PETE-I); IBM UK LTD (IBMC); INT BUSINESS MACHINES CORP (IBMC)
Inventor: KERN R F; LUDVIG R W; PETERSEN D B; PETERSEN D
Number of Countries: 108 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20040260899	A1	20041223	US 2003465726	A	20030618	200510	B
WO 200571544	A1	20050804	WO 2004EP51117	A	20040615	200551	

Priority Applications (No Type Date): US 2003465726 A 20030618
Patent Details:

Patent No	Kind Lan	Pg	Main IPC	Filing Notes
US 20040260899	A1	20	G06F-012/16	
WO 200571544	A1 E		G06F-011/20	

   Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ
   CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID
   IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ
   NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ
   UA UG US UZ VC VN YU ZA ZM ZW
   Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR
   GB GH GM GR HU IE IT KE LS LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL
   SZ TR TZ UG ZM ZW

Abstract (Basic): US 20040260899 A1
      NOVELTY - The method involves reconfiguring network resources to
   direct input/output requests from volumes in one storage system to
   volumes in another storage system in response to detecting a failure of
   the former storage system and the availability of the latter storage
   system. Updates to the latter storage system are copied to **third
   storage** system in remote location after reconfiguring the network
   resources.
      DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the
   following:
      (A) a system for managing data
      (B) an article of manufacture for managing data, wherein the
   article of manufacture includes one program to cause operations to be
   performed with respect to storage systems having volumes.
      USE - Used for managing data in a network computing environment.
      ADVANTAGE - The method allows failover to remote sites and at the
   same time maintains continuous availability of data with minimal
   interruption.
      DESCRIPTION OF DRAWING(S) - The drawing shows operations performed
   to **mirror** data to different storage locations.
      pp; 20 DwgNo 3/11
Title Terms: DATA; MANAGE; METHOD; NETWORK; COMPUTATION; ENVIRONMENT; COPY;
   UPDATE; ONE; STORAGE; SYSTEM; STORAGE; SYSTEM; REMOTE; LOCATE; AFTER;
   NETWORK; RESOURCE
Derwent Class: T01; W01; W05
International Patent Class (Main): **G06F-011/20** ; **G06F-012/16**
File Segment: EPI

W rey dote

016764914   **Image available**
WPI Acc No: 2005-089190/200510
XRPX Acc No: N05-077896
   Data mirroring **method for use in network computing environment,
   involves copying updated volumes in storage system to volumes in** third
   storage **system during suspension of copying of volumes between former
   system and another system**
Patent Assignee: KERN R F (KERN-I); MICKA W F (MICK-I); PETERSEN D B
   (PETE-I); SPEAR G A (SPEA-I)
Inventor: KERN R F; MICKA W F; PETERSEN D B; SPEAR G A
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20040260736	A1	20041223	US 2003465111	A	20030618	200510	B

Priority Applications (No Type Date): US 2003465111 A 20030618
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20040260736	A1		19	G06F-017/30	

Abstract (Basic): US 20040260736 A1
     NOVELTY - The method involves transmitting a command for copying
updates to volumes in a storage system to corresponding volumes in
another storage system indicated in a **mirror** policy (36). The copying
of volumes between the storage systems is suspended if an event occurs.
Updated volumes in the latter storage system are copied to the volumes
in a **third** **storage** system during suspension of copying of volumes
between the systems.
     DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the
following:
     (A) a system for **mirroring** data
     (B) an article of manufacture for **mirroring** data among storage
systems.
     USE - Used for **mirroring** data in a network computing environment.
     ADVANTAGE - The method **mirrors** data between distant sites to
allow recovery of data in case of a failure at an entire site, thus
minimizing disruptions to data availability.
     DESCRIPTION OF DRAWING(S) - The drawing shows a block diagram
illustrating a network computing environment.
     Remote site (20)
     Monitoring system (32)
     Monitoring program (34)
     Mirror policy (36)
     pp; 19 DwgNo 1/11
Title Terms: DATA; **MIRROR** ; METHOD; NETWORK; COMPUTATION; ENVIRONMENT;
   COPY; UPDATE; VOLUME; STORAGE; SYSTEM; VOLUME; THIRD; STORAGE; SYSTEM;
   SUSPENSION; COPY; VOLUME; FORMER; SYSTEM; SYSTEM
Derwent Class: T01; W01
International Patent Class (Main): **G06F-017/30**
File Segment: EPI

DIALOG(R)File 350:Derwent WPIX
(c) 2005 Thomson Derwent. All rts. reserv.

Wrong data (handwritten)

015855319   **Image available**
WPI Acc No: 2004-013149/200402
XRPX Acc No: N04-009718
   **Data backup method for a mobile or desktop PC in which data, including
   system data, is stored to a backup device so that in the event of system
   failure data and system environment can be restored to a replacement
   computer**
Patent Assignee: FUJITSU SIEMENS COMPUTERS GMBH (SIEI   )
Inventor: FISCHER R; OBERREINER A
Number of Countries: 031 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
DE 10219344	A1	20031120	DE 10219344	A	20020430	200402	B
EP 1365324	A2	20031126	EP 20033784	A	20030219	200402	
EP 1365324	B1	20050824	EP 20033784	A	20030219	200556	
DE 50301029	G	20050929	DE 301029	A	20030219	200564	
			EP 20033784	A	20030219		

Priority Applications (No Type Date): DE 10219344 A 20020430
Patent Details:

Patent No	Kind Lan	Pg	Main IPC	Filing Notes
DE 10219344	A1	.5	G06F-012/16	
EP 1365324	A2 G		G06F-011/14	

   Designated States (Regional): AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
   GR HU IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR
EP 1365324   B1 G   G06F-011/14
   Designated States (Regional): AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
   HU IE IT LI LU MC NL PT SE SI SK TR
DE 50301029   G   G06F-011/14   Based on patent EP 1365324

Abstract (Basic): DE 10219344 A1
       NOVELTY - Data backing-up, exchange and removal method for mobile
   and desktop PCs in which data stored on a first PC with a first
   operating system and environment is transferred to a second suitable
   data medium for backup purposes. The data backup includes system
   specific information, so that if an accident occurs to the first PC the
   second data medium can be connected to a second PC so that data
   including system data can be transferred to its (**third**) data **storage**
   unit. The system information and other data can be used to create a
   second computing environment that largely **mirrors** the first.
       USE - Data backup method for a mobile or desktop PC.
       ADVANTAGE - The inventive method ensures that in the event of
   failure of a user PC a replacement PC can be quickly configured so that
   it has the same operating environment, without the need for redundant
   components, etc.
       DESCRIPTION OF DRAWING(S) - The figure shows two computers and
   other components essential for inventive method implementation.
       first and second computer systems (1, 2)
       data media (1.1, 1.2)
       backup component (1.3)
       third data medium device. (2.1)
       pp; 5 DwgNo 1/1
Title Terms: DATA; METHOD; MOBILE; DATA; SYSTEM; DATA; STORAGE; DEVICE; SO;
   EVENT; SYSTEM; FAIL; DATA; SYSTEM; ENVIRONMENT; CAN; RESTORATION; REPLACE
   ; COMPUTER
Derwent Class: T01
International Patent Class (Main): **G06F-011/14 ;   G06F-012/16**
File Segment: EPI

013065236   **Image available**
WPI Acc No: 2000-237108/200020
Related WPI Acc No: 1997-480410
XRPX Acc No: N00-177831
  Data backup copy generating method in tertiary   storage **device,
  involves resuming** mirroring **after performing backup of data stored in
  one set of volumes to** tertiary   storage **device**
Patent Assignee: EMC CORP (EMCE-N)
Inventor: RAZ Y; TAMER P
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 6035412	A	20000307	US 96617689	A	19960319	200020	B
			US 97820912	A	19970319		

Priority Applications (No Type Date): US 97820912 A 19970319; US 96617689 A
  19960319
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6035412	A		25	G06F-011/00	CIP of application US 96617689
					CIP of patent US 5852715

Abstract (Basic): US 6035412 A
    NOVELTY - The backup of data stored in second set of volumes is
performed to **tertiary   storage** device after which the **mirroring** is
resumed, and archived redo logs are transferred to **tertiary   storage**
device which **stores** it along with the backed up data. The two sets of
volumes are re-synchronized with each other after resuming **mirroring** .

    DETAILED DESCRIPTION - The contents of first set of volumes is
mirrored into second set of volumes, while data is being written to
first set of storage volumes. The **mirroring** is terminated after
writing work, during which writing of data to first set of volumes is
continued, thereby making the two sets of volumes in synchronous with
each other. The archived redo logs for transaction that are applied to
data stored in first set of storage volumes is generated.
    USE - For database backup system by **mirroring** of primary database
in computer system.
    ADVANTAGE - Ensures high speed backups, since loads on the database
host and storage subsystem is reduced by by-passing the paths to
tertiary   storage .
    DESCRIPTION OF DRAWING(S) - The figure shows block diagram of
database system with backup capability.
    pp; 25 DwgNo 1A/9
Title Terms: DATA; COPY; GENERATE; METHOD; TERTIARY; STORAGE; DEVICE;
  RESUME; **MIRROR** ; AFTER; PERFORMANCE; DATA; STORAGE; ONE; SET; VOLUME;
  TERTIARY; STORAGE; DEVICE
Derwent Class: T01
International Patent Class (Main): **G06F-011/00**
File Segment: EPI

011843958   **Image available**
WPI Acc No: 1998-260868/199823
Related WPI Acc No: 1993-152025; 1993-404302; 1994-248718; 1994-358517;
   1999-243439; 1999-302242; 2000-270481; 2000-328326; 2001-326639;
   2003-311594; 2003-327764; 2003-830438; 2004-355455
XRPX Acc No: N98-205695
   **Remote copy data storage system for stock market - includes host computer
   and storage system coupled to remote computer and storage system with
   indicators providing validity of data elements between systems**
Patent Assignee: EMC CORP (EMCE-N)
Inventor: ALTERESCU B; CASTEL D D C; OFEK Y Y O; SHKLARSKY G G; VISHLITZKY
   N; YANAI M
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5742792	A	19980421	US 9352039	A	19930423	199823	B
			US 96654511	A	19960528		

Priority Applications (No Type Date): US 96654511 A 19960528; US 9352039 A
   19930423
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5742792	A		55	G06F-012/16	CIP of application US 9352039
					CIP of patent US 5544347

Abstract (Basic): US 5742792 A
     The system includes a host computer with a data storage system
   including at least data storage system controller and at least one data
   storage device. The data storage system is coupled to the host computer
   for data storage. A second data storage system includes at least a
   second controller and at least one data storage device. The second data
   storage system is remotely coupled to the first for data copying. The
   first controller coordinates and controls the copying of the data.
     The first data storage system maintains an index including at least
   a first indicator indicating whether a data element stored on the first
   data storage system is valid, a second indicator indicating validity of
   a data element stored on the second data **storage** system, a **third**
   indicator providing an indication of whether a write is pending to the
   data element stored on the first data system and at least a fourth
   indicator providing an indication of whether a write is pending to the
   data element stored in the second data storage system.
     ADVANTAGE - Automatically and asynchronously generates **mirror**
   copy of storage at remote site.
     Dwg.1/23
Title Terms: REMOTE; COPY; DATA; STORAGE; SYSTEM; STOCK; MARKET; HOST;
   COMPUTER; STORAGE; SYSTEM; COUPLE; REMOTE; COMPUTER; STORAGE; SYSTEM;
   INDICATE; VALID; DATA; ELEMENT; SYSTEM
Derwent Class: T01
International Patent Class (Main): **G06F-012/16**
File Segment: EPI

011632837
WPI Acc No: 1998-049965/199805
XRPX Acc No: N98-039860
  Distributed intelligent controller systems - has intelligent storage RAID
  controllers on secondary bus, with bridge processor causing entire
  storage sub-system to appear as single logical entity to host system
Patent Assignee: ANONYMOUS (ANON)
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RD 402050	A	19971010	RD 97402050	A	19970920	199805	B

Priority Applications (No Type Date): RD 97402050 A 19970920
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RD 402050	A		1	G06F-000/00	

Abstract (Basic): RD 402050 A
    The challenge for intelligent peripherals is to provide a level of
performance which is comparable or greater than when the peripheral is
controlled by a system CPU. This may be a sizeable challenge since the
system CPU may be orders of magnitude more powerful than an embedded
processor dedicated to a peripheral.
    An intelligent system employs intelligent sub-system network and
storage controllers. This may also be implemented in a hierarchical
fashion where the bridge processor might support I2O messaging and
convert these messages to other I2O or proprietary messages for the
controller devices. This could be used to provide an I2O interface for
proprietary controllers without re-writing the controller software, and
without incurring the additional overhead at the controller, providing
higher performance. This architecture may also be used to implement a
messaging layer at the bridge processor, allowing peer operation among
secondary devices.
    Since bus traffic is often not a limiting factor in system
performance, the use of additional local intelligence may be
implemented on a primary system bus.
    Three intelligent **storage** RAID controllers can be located on
the secondary bus. The bridge processor is used to cause the entire
storage sub-system to appear as a single logical entity to the host
system. Other storage management and redundancy functions, including
cache **mirroring** , can be relegated to a local processor, either in
bridge configuration.
    USE - Architectures are applicable to other bus interface and
processor architectures and also to other bridge architectures where
local processors reside across interface such as P1394, SCSI or
fibre-channel, rather than PCI bus.
    ADVANTAGE - Use of intelligent controllers increases system
performance compared to single bridge processor used to control
non-intelligent peripheral controllers for network, storage or other
functions. Local processor may be used to effect transfer of data from
parity generation device, off-loading scatter/gather list processing
from other controllers.
    Dwg.0/1
Title Terms: DISTRIBUTE; INTELLIGENCE; CONTROL; SYSTEM; INTELLIGENCE;
  STORAGE; RAID; CONTROL; SECONDARY; BUS; BRIDGE; PROCESSOR; CAUSE; STORAGE
  ; SUB; SYSTEM; APPEAR; SINGLE; LOGIC; ENTITY; HOST; SYSTEM
Derwent Class: T01
International Patent Class (Main): **G06F-000/00**
File Segment: EPI

08314668   **Image available**
REMOTE COPY SYSTEM USING TWO OR MORE SITES

ABSTRACT

PROBLEM TO BE SOLVED: To provide an information processing system capable
of reducing the quantity of data to be lost when a first storage device and
a second storage device fail simultaneously.

SOLUTION: Two storage areas are prepared in a first storage device, and
data are remotely transferred and copied synchronously from the first
storage area of the first storage device to the storage area of a second
storage device, and the data are remotely transferred and copied
asynchronously from the second area of the first storage device to the
storage area of a **third storage** device. Also, the both storage areas
of the first storage device are **mirrored** to a computer which performs
access to the first storage device.

Wrong date

07822231   **Image available**
DISK ARRAY CONTROLLER

ABSTRACT

PROBLEM TO BE SOLVED: To provide a disk array configured of **three
storage** units whose failure resistance and read/write performance is
improved, and to provide a disk array having a switching circuit exclusive
for backup capable of quickly executing backup or restore processing, and
reducing a load on a system.

SOLUTION: The disk array controller 50 is provided with a disk array
control circuit 51 configuring the disk array of **mirroring** for **three
storage** units HDD 53, HDD 54, and HDD 55 and a switching circuit 52 for
separating or re-connecting one arbitrary storage unit among those tree
storage units from or to the disk array. Thus, it is possible to realize
the direct connection to a backup device, and to realize the backup or
restore processing in an ideal environment.

07739616   **Image available**   .
METHOD AND MEANS FOR BACKUP AND RECOVERY PROCESSING SYSTEM

PUB. NO.:   2003-233518   [JP 2003233518 A]
PUBLISHED: August 22, 2003 (20030822)
INVENTOR(s):   YAMAKAMI KENJI
APPLICANT(s):   HITACHI LTD
APPL. NO.:   2002-366022   [JP 2002366022]
FILED: December 18, 2002 (20021218)
PRIORITY: 01 033584 [US 200133584], US (United States of America),
                 December 27, 2001 (20011227)
INTL CLASS: **G06F-012/00 ; G06F-003/06**

<div align="center">ABSTRACT</div>

PROBLEM TO BE SOLVED: To safely manage a **mirror** of a volume between
remote sites for providing a means for backup and recovery.

SOLUTION: In this method for backup and recovery, a first storage subsystem
connected to a first host and a second storage subsystem connected to a
second host are used, and the first host and the second host are connected
together via a path. A fist logic volume is arranged in the first storage
subsystem, while a second logic and a **third** logic volume are **stored** in
the second storage subsystem. The second logic volume copies the first
logic volume to be in a synchronous condition with the first logic volume.
The third volume copies the second logic volume. A recovery means places
the third logic volume on the second logic volume, reads a file to be
recovered from the third volume in the second host, writes the file in the
second volume, and the first volume is synchronized again with the second
volume.

```
Set     Items   Description
S1      1047146 STORE? ? OR STORAGE OR DRIVE? ? OR DISK? ? OR DISC? ?
S2       90512  (TEMPORARY OR SECONDARY OR BACKUP OR BACK?()UP OR STORE OR
                STORAGE)()(DEVICE? ? OR APPARATUS? ? OR SYSTEM? ? OR SUBSYSTE-
                M? ? OR UNIT? ? OR DRIVE? ? OR DISK? ? OR DISC? ?)
S3      1045672 THREE OR THIRD OR 3RD OR TERTIARY
S4       11520  (SECONDARY OR SECOND OR 2ND OR ALTERNATIVE OR ANOTHER OR A-
                DDITIONAL)(3N)S2
S5        6673  (PLURAL? OR MORE()THAN()ONE OR MANY OR SEVERAL OR MULTIPLE?
                ? OR MULTIPLICITY  OR NUMEROUS)(3N)S2
S6      106783  MIRROR?
S7        4817  (DELETE? ? OR DELETING OR ERASE? ? OR ERASING OR REMOVE? ?
                OR REMOVING)(5N)(S6 OR COPY OR COPIES)
S8       13922  (SUCCESS? OR COMPLETE OR COMPLETED OR (ERROR? ? OR CORRUPT-
                ?)(2N)(FREE OR NO OR "NOT"))(5N)(S6 OR COPY OR COPIES OR COPY-
                ING OR WRITE OR WRITING OR WRITTEN)
S9           0  (S4 OR S5)(30N) S6 (30N) S7 (30N) S8
S10         14  (S4 OR S5)(30N) S6 (30N) (S7 OR S8)
S11         14  IDPAT (sorted in duplicate/non-duplicate order)
S12         14  IDPAT (primary/non-duplicate records only)
File 348:EUROPEAN PATENTS 1978-2005/Oct W05
         (c) 2005 European Patent Office
File 349:PCT FULLTEXT 1979-2005/UB=20051110,UT=20051103
         (c) 2005 WIPO/Univentio
```

W rong date

12/5/2   (Item 2 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2005 WIPO/Univentio. All rts. reserv.

01262826   **Image available**
**METHOD, SYSTEM, AND PROGRAM FOR ANDLING A FAILOVER TO A REMOTE STORAGE
     LOCATION**
**PROCEDE,   SYSTEME   ET   PROGRAMME   POUR   GERER UNE REPRISE EN DIRECTION D'UN
     EMPLACEMENT DE MEMOIRE ELOIGNE**
Patent Applicant/Assignee:
  INTERNATIONAL BUSINESS MACHINES CORPORATION, New Orchard Road, Armonk, NY
     10504, US, US (Residence), US (Nationality), (For all designated states
     except: US)
  IBM UNITED KINGDOM LIMITED, PO Box 41, North Harbour, Portsmouth,
     Hampshire PO6 3AU, GB, GB (Residence), GB (Nationality), (Designated
     only for: MG)
Patent Applicant/Inventor:
  KERN Robert Frederic, 5128 N. Fairway Heights Drive, Tucson, Arizona
     85749, US, US (Residence), US (Nationality), (Designated only for: US)
  PETERSEN David, 415 Chesapeake Drive, Great Falls, VA 22066, US, US
     (Residence), US (Nationality), (Designated only for: US)
  LUDVIG Rune Willy, Fargargardstorget 24, 11643 Stockholm, SE, SE
     (Residence), US (Nationality), (Designated only for: US)
Legal Representative:
  LING Christopher John (agent), IBM United Kingdom Limited, Intellectual
     Property Law, Hursley Park, Winchester, Hampshire S021 2JN, GB,
Patent and Priority Information (Country, Number, Date):
  Patent: WO 200571544 A1 20050804 (WO 0571544)
  Application: WO 2004EP51117 20040615 (PCT/WO EP04051117)
  Priority Application: US 2003465726 20030618
Designated States:
(All protection types applied unless otherwise stated - for applications
2004+)
  AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM
  DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC
  LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO
  RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
  (EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PL PT RO
  SE SI SK TR
  (OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
  (AP) BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW
  (EA) AM AZ BY KG KZ MD RU TJ TM
Main International Patent Class: G06F-011/20
Publication Language: English
Filing Language: English
Fulltext Availability:
  Detailed Description
  Claims
Fulltext Word Count: 8371

English Abstract
  Provided are a method, program, and system for managing data. A mirror
  policy is processed indicating volumes in a first storage system to
  mirror to volumes in a second storage system and volumes in the second
  storage system to mirror to volumes in a third storage system, wherein
  the third storage system is at a first geographical location remote with
  respect to a second geo-graphical location including the first and second
  storage systems. A failure is detected of the first and second storage
  systems at the first geographical location. Automatic reconfiguration is
  made to network resources directing I/O requests to volumes in the first
  storage system to direct I/O requests to volumes in the third storage
  system. A failure of the first storage system and the availability of the
  second storage system is detected and, in response, network resources are
  re-configured to direct I/O requests to volumes in the first storage
  system to volumes in the second storage system in response to detecting

the failure of the first storage system and the availability of the second storage system. Updates to the second storage system are copied to the third storage system after reconfiguring network resources to direct I/O requests to volumes in the first storage system to volumes in the second storage system.

Wrong date

12/5,K/5   (Item 5 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2005 WIPO/Univentio. All rts. reserv.

01122163   **Image available**
DATA STORAGE DEVICES HAVING IP CAPABLE PARTITIONS
DISPOSITIFS DE STOCKAGE DE DONNEES COMPRENANT DES PARTITIONS COMPATIBLES IP
Patent Applicant/Assignee:
  ZETERA CORPORATION, University Research Park, Suite 160, 5251 California
    Avenue, Irvine, CA 92612, US, US (Residence), US (Nationality), (For
    all designated states except: US)
Patent Applicant/Inventor:
  FRANK Charles, Zetera Corporation, 4800 Camino Costado, San Clemente, CA
    92673, US, US (Residence), US (Nationality), (Designated only for: US)
  LUDWIG Thomas, Zetera Corporation, 4800 Camino Costado, San Clemente, CA
    92673, US, US (Residence), US (Nationality), (Designated only for: US)
  HANAN Thomas, Zetera Corporation, 27022 Manscal, Mission Viejo, CA 92691,
    US, US (Residence), US (Nationality), (Designated only for: US)
  BABBITT William, Zetera Corporation, 22350 Gavilan Road, Perris, CA 92570
    , US, US (Residence), US (Nationality), (Designated only for: US)
Legal Representative:
  RUTAN & TUCKER LLP (et al) (agent), Suite 1400, 611 Anton Blvd., Costa
    Mesa, CA 92626, US,
Patent and Priority Information (Country, Number, Date):
  Patent: WO 200444753 A1 20040527 (WO 0444753)
  Application: WO 2002US40199 20021216 (PCT/WO US02040199)
  Priority Application: US 2002425867 20021112
Designated States:
(Protection type is "patent" unless otherwise stated - for applications
prior to 2004)
  AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ (utility
  model) CZ DE (utility model) DE DK (utility model) DK DM DZ EC EE
  (utility model) EE ES FI (utility model) FI GB GD GE GH GM HR HU ID IL IN
  IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ
  OM PH PL PT RO RU SC SD SE SG SK (utility model) SK SL TJ TM TN TR TT TZ
  UA UG US UZ VC VN YU ZA ZM ZW
  (EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SI SK
  TR
  (OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
  (AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
  (EA) AM AZ BY KG KZ MD RU TJ TM
Main International Patent Class: G06F-012/06
Publication Language: English
Filing Language: English
Fulltext Availability:
  Detailed Description
  Claims
Fulltext Word Count: 5696

English Abstract
  A storage device (300) has partitions (310A, 310B, 310C, 320A, 320B,
  320C, 330) that are separately addressed by distinct IP addresses (IP1,
  IP2, IP3, IP4, IP5, IP7, IP9). This allows direct access of the
  partitions (310A, 310B, 310C, 320A, 320B, 320C, 330), on a peer-to-peer
  basis, by any other device that can communicate using IP. Preferred
  storage devices support spanning between or among partitions of the same
  device, as well as between or among different storage devices. Both
  multicast and proxy spanning are contemplated. Combinations of the
  inventive storage devices with each other, and with prior art storage
  devices are contemplated, in all manner of mirroring and other
  arrangements. In still other aspects of the invention, a given storage
  device can comprise one or more types of media, including any combination
  of rotating and non-rotating media, magnetic and optical, and so forth.

French Abstract

L'invention concerne un dispositif de stockage (300) comprenant des
partitions (310A, 310B, 310C, 320A, 320B, 320C, 330) adressees separement
par des adresses IP distinctes (IP1, IP2, IP3, IP4, IP5, IP7, IP9). Cela
permet un acces direct aux partitions (310A, 310B, 310C, 320A, 320B,
320C, 330), sur une base de pair a pair, par n'importe quel autre
dispositif pouvant communiquer au moyen du protocole IP. Les dispositifs
de stockage preferes prennent en charge un archivage multidisque entre ou
parmi des partitions du meme dispositif, et entre ou parmi des
dispositifs de stockage differents. L'invention se rapporte a l'archivage
multidisque de type multicast et proxy. Elle porte en outre sur des
combinaisons des dispositifs de stockage de l'invention les uns avec les
autres et avec des dispositifs de stockage de la technique anterieure,
selon n'importe quelle technique d'ecriture miroir et autres
arrangements. Dans d'autres aspects de l'invention, un dispositif de
stockage donne peut comprendre un ou plusieurs types de supports, y
compris une combinaison quelconque de supports rotatifs et non rotatifs,
magnetiques et optiques, etc.

Legal Status (Type, Date, Text)
Publication   20040527 A1 With international search report.
Publication   20040527 A1 With amended claims.
Examination   20040624 Request for preliminary examination prior to end of
                        19th month from priority date

Fulltext Availability:
  Claims

Claim
... the storage device of claim 1, and a second storage device having
  additional partitions that **mirror** data stored in the first and **second**
  partitions.

  20 A **storage system** comprising the storage device of claim 19,
  wherein the additional partitions of the **second storage device** are
  directly addressed by IP addresses that are distinct from the first and
  second IP...

...system comprising the storage device of claim 20, wherein the storage
  devices participating in a **mirrored** set discontinue processing requests
  successfully completed by another member of the **mirrored** set.
  13 of 14
  . A storage device having a first type of media logically split...

...second
  I
  storage device having additional partitions that miffor data stored in
  the first and **second** partitions.
  29 A **storage system** comprising the storage device of claim 28,
  wherein the additional partitions of the **second storage device** are
  directly addressed by IP addresses that are distinct from the first and
  second IP...

...system comprising the storage -device of claim 29, wherein the storage
  devices participating in a **mirrored** set discontinue processing requests
  successfully completed by another member of the **mirrored** set.
  AMENDED SHEET (ARTICLE 19)

01047092   **Image available**
PRODUCING A MIRRORED COPY USING INCREMENTAL-DIVERGENCE
PRODUCTION D'UNE COPIE MIROIR PAR DIVERGENCE INCREMENTALE
Patent Applicant/Assignee:
  MARATHON TECHNOLOGIES CORPORATION, 1300 Massachusetts Avenue, Boxborough,
   MA 01719, US, US (Residence), US (Nationality)
Inventor(s):
  TREMBLAY Glenn A, 139 South Street, Upton, MA 01568, US,
  LEVEILLE Paul A, 12 Stratton Road, Grafton, MA 01519, US,
  KAMAN Charles H, 10, Oak Meadow Rd., Lincoln, MA 01773, US,
  GRANNUM Gairy, 35, Leonard Road, Boxborough, MA 01719, US,
Legal Representative:
  HAYDEN John F (agent), Fish & Richardson, P.C., 1425 K Street, N.W., 11th
   Floor, Washington, DC 20005-3500, US,
Patent and Priority Information (Country, Number, Date):
  Patent: WO 200377128 A1 20030918 (WO 0377128)
  Application: WO 2003US6620 20030306 ·(PCT/WO US0306620)
  Priority Application: US 200290728 20020306
Designated States:
(Protection type is "patent" unless otherwise stated - for applications
prior to 2004)
  JP
  (EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE
  SI SK TR
Main International Patent Class: G06F-011/00
Publication Language: English
Filing Language: English
Fulltext Availability:
  Detailed Description
  Claims
Fulltext Word Count: 10378

English Abstract
  Producing a mirror copy using incremental-divergence is performed in a
  computer system in which write requests (130) are each associated with a
  reference label. A mirror set may be restored to a state in which the
  data storage devices contain identical data by copying from the data
  storage device having "good" data only portions of data which have not
  been stored on the data storage device having divergent data.
  Incremental-divergence copying may be accomplished by keeping track of
  the changes made after a point in which the data storage devices are
  known to contain identical data.
French Abstract
  L'invention concerne la production d'une copie miroir par divergence
  incrementale dans un systeme informatique dans lequel des demandes (130)
  d'ecriture sont chacune associees a une etiquette de reference. Un
  ensemble miroir peut etre remis a l'etat dans lequel les dispositifs de
  stockage des donnees contiennent des donnees identiques en copiant dans
  le dispositif de stockage de donnees comprenant les bonnes donnees
  uniquement des parties de donnees n'ayant pas ete stockees dans le
  dispositif de stockage de donnees comprenant des donnees divergentes. La
  copie par divergence incrementale peut etre executee par suivi des
  changements faits apres un point sur lequel les dispositifs de stockage
  de donnees sont supposes contenir des donnees identiques.

Legal Status (Type, Date, Text)
Publication 20030918 A1 With international search report.

Fulltext Availability:
  Claims

Claim
... of storage affected by new write requests
in a fourth bit map;
26
after the **second** storage device confirms that data in the processed
write requests have been written to non-volatile storage of the second
storage device , sending a status message to the first storage device
indicating whether the write data
were...

...written, deleting the third bit map; and
after receiving the status message indicating that the **write** data were
not **successfully** written, **copying** the contents of the fourth bit map
to the third bit map and deleting the fourth bit map.

37 A mirrored data storage system comprising:
a first **storage device** ;
a **second storage device** ;
a first controller associated with the first **storage device** ; and
a **second** controller associated with the **second storage device** ;
wherein:
the first controller is configured to:
receive write requests at a first @torage device...

00986557   **Image available**
ASYNCHRONOUS MIRRORING IN A STORAGE AREA NETWORK
MIROITAGE ASYNCHRONE DANS UNE ZONE DE STOCKAGE RESEAU
Patent Applicant/Assignee:
  STOREAGE NETWORKING TECHNOLOGIES, 63 Bar Yehuda Road, 36651 Nesher, IL,
    IL (Residence), IL (Nationality), (For all designated states except:
    US)
Patent Applicant/Inventor:
  NAHUM Nelson, 4 Morad Hayasmin, 34762 Haifa, IL, IL (Residence), IL
    (Nationality), (Designated only for: US)
Legal Representative:
  LOWY Avi (agent), Glucksman - Lowy, P. ·O. Box 6202, 31061 Haifa, IL,
Patent and Priority Information (Country, Number, Date):
  Patent: WO 200317022 A2-A3 20030227 (WO 0317022)
  Application: WO 2002IL665 20020813 (PCT/WO IL02000665)
  Priority Application: US 2001312209 20010814
Designated States:
(Protection type is "patent" unless otherwise stated - for applications
prior to 2004)
  AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ
  EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR
  LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI
  SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
  (EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR
  (OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
  (AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
  (EA) AM AZ BY KG KZ MD RU TJ TM
Main International Patent Class: G06F-012/16
Publication Language: English
Filing Language: English
Fulltext Availability:
  Detailed Description
  Claims
Fulltext Word Count: 13256

English Abstract
  A method and a system for simultaneously **mirroring** of one or many data
  objects from one or **many** local **storage** **devices** (SDL) to one or
  many remote **storage** **devices** (SDRx). The one or many data objects may
  be used during **mirroring** . A **mirroring** functionality consists in the
  application of a **succession** of freeze and **copy** procedures repeated
  sequentially in **successive** **mirroring** cycles. Only the last local
  updated version is saved in the remote storage device(s). Each new
  updated version overwrites the previous version. **Mirroring** is performed
  asynchronously in the background by freezing and copying successive
  discrete blocks of data. The mirroring functionality is operable to
  perform more than one mirroring operation simultaneously as well as
  simultaneously cross-mirroring.

French Abstract
  L'invention concerne un procede et un systeme permettant un miroitage
  simultane d'un ou de plusieurs objets de donnees, a partir d'un ou de
  plusieurs dispositifs de stockage locaux, sur un ou plusieurs dispositifs
  de stockage eloignes. L'objet de donnees peut etre utilise pendant le
  miroitage. Une fonctionnalite de miroitage comprend l'application d'une
  succession de procedures de figeage et de copie, repetees de maniere
  sequentielle dans des cycles de miroitage successifs. Seule la derniere
  version locale miroitee mise a jour est enregistree dans le dispositif de
  stockage eloigne. Chaque nouvelle version mise a jour ecrase la version
  precedente. Le miroitage s'effectue de maniere asynchrone, en arriere

plan, par figeage et copie de blocs de donnees discrets successifs. La
fonctionnalite de miroitage peut servir a effectuer plus d'une operation
de miroitage simultanement, ainsi qu'un miroitage croise.

Legal Status (Type, Date, Text)
Publication   20030227 A2 Without international search report and to be
                         republished upon receipt of that report.
Examination   20030912 Request for preliminary examination prior to end of
                         19th month from priority date
Search Rpt   20040318 Late publication of international search report
Republication 20040318 A3 With international search report.

Fulltext Availability:
  Detailed Description
  Claims

English Abstract
  A method and a system for simultaneously **mirroring** of one or many data
  objects from one or **many** local **storage** **devices** (SDL) to one or
  many remote **storage** **devices** (SDRx). The one or many data objects may
  be used during **mirroring** . A **mirroring** functionality consists in the
  application of a **succession** of freeze and **copy** procedures repeated
  sequentially in **successive** **mirroring** cycles. Only the last local
  updated version is saved in the remote storage device(s). Each new
  updated version overwrites the previous version. **Mirroring** is performed
  asynchronously in the background by freezing and copying successive
  discrete blocks of data...

Detailed Description
... updates addressed to the
  selected data object,
  permitting use of the selected data object during **mirroring** in
  associative operation
  with the ultimate resulting source volume,
  synchronizing the penultimate local auxiliary volume...

...at least one ultimate remote volume into the penultimate remote
  volume, and
  repeating a next **mirroring** cycle by default command after completion of
  copy to the at least one **second** **storage** **device** , unless receiving
  command for **mirroring** break.

  It is yet a ftirther object of the present invention to provide a method
  and a system for.

  storing in the at least one remote storage device of a **complete**
  mirrored **copy** of the selected data object comprising updates entered
  thereto at the time when copy of...for copying from and one remote
  storage device for writing thereto.
  As stated above, the **mirroring** of a data object from one **storage**
  device to **another** **storage** **device** requires the application of
  successive freeze and **copy** procedures.

  However, the operation of a network connectivity may not be hampered
  while **mirroring** .

  Therefore, the description below illustrates first the freeze procedure,
  then the operation 1 5 of...objects to be frozen, whether belonging to
  the same selected data object or stored in **more** **than** **one** local
  storage **device** . The cycle time to the next **mirroring** cycle is 2 o
  dictated by the time needed for the **copy** procedure to **complete** the
  last **copy** , when multiple **copies** are performed, such as to **many**
  remote **storage** **devices** .

It is also noted that simultaneous cross **mirroring**, from local to remote storage device and vice-versa is also practical with the **mirroring** functionality for the rows I to VI inclusive. As a simple example for the method of row 1, both the local host HL and the remote host HR operate the **mirroring** fimctionality, each host acting as the local host while the other host is the remote...

Claim
...   updates addressed to the selected
data object,
permitting use of the selected data object during **mirroring** in associative operation
with the ultimate resulting source volume,
4 0 synchronizing the penultimate local the penultimate remote volume, and
repeating a next **mirroring** cycle by default command after completion of copy to the at least one **second storage device**, unless receiving command for **mirroring** break.

15 The method according to Claim 14, wherein **mirroring** further comprises the steps ofstoring in the at least one. remote storage device of a **complete mirrored copy** of the selected data object comprising updates entered thereto at the time when copy of...in the ultimate resulting source volume,
the selected data object being permitted for use during **mirroring** in associative
operation with the ultimate resulting source volume and,
the penultimate local auxiliary volume...
...least one ultimate remote volume being synchronized into the penultimate remote volume, and
a next **mirror**ing cycle being repeated by default command after completion of copy to the at least one **second storage device** (SDR), unless a command for **mirroring** break is
received.

39 The system according to Claim 3 8, wherein **mirroring** further comprises: the at least one remote storage device storing a **complete mirrored copy** of the selected data object comprising updates entered thereto at the time when copy of...

DIALOG(R)File 349:PCT FULLTEXT

00738012   **Image available**
METHOD AND SYSTEM FOR MIRRORING AND ARCHIVING MASS STORAGE
PROCEDE ET SYSTEME DE DOUBLEMENT ET D'ARCHIVAGE D'UNE MEMOIRE DE GRANDE CAPACITE
Patent Applicant/Assignee:
  LEGATO SYSTEMS INC, 3219 Porter Drive, Palo Alto, CA 94304, US, US
    (Residence), US (Nationality)
Inventor(s):
  OHRAN Richard S, 71 West 4750 North, Provo, UT 84604, US
Legal Representative:
  GILMORE Richard C, Workman, Nydegger & Seeley, 1000 Eagle Gate Tower, 60
    East South Temple, Salt Lake City, UT 84111, US
Patent and Priority Information (Country, Number, Date):
  Patent: WO 200050999 A1 20000831 (WO 0050999)
  Application: WO 2000US3787 20000214 (PCT/WO US0003787)
  Priority Application: US 99255486 19990223
Designated States:
(Protection type is "patent" unless otherwise stated - for applications
prior to 2004)
  AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD
  GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD
  MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG
  UZ VN YU ZW
  (EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
  (OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
  (AP) GH GM KE LS MW SD SL SZ TZ UG ZW
  (EA) AM AZ BY KG KZ MD RU TJ TM
Main International Patent Class: G06F-012/16
International Patent Class: G06F-013/16; H04L-009/00
Publication Language: English
Filing Language: English
Fulltext Availability:
  Detailed Description
  Claims
Fulltext Word Count: 14752

English Abstract
  A method and system for mirroring and archiving mass storage. A primary
  mass storage (20) and a secondary mass storage (50) are synchronized to
  contain the same data. Thereafter a primary system (12) tracks changes
  (60a-60c) made to the primary mass storage. These changes are
  consolidated periodically into update files, the consolidations
  representing changes made to the primary mass storage during a time
  interval that ends when the primary mass storage is in a logically
  consistent state. These update files contain only those changes necessary
  to represent the modified state of the primary mass storage at the time
  of the update. The primary system then transfers the update files to a
  secondary system to bring the secondary mass storage current with the
  primary mass storage. The consolidation minimizes the amount of
  information that must be transferred and therefore allows for a
  relatively low bandwidth communication channel. In addition, update files
  may be cached (70, 72, 74) by the primary system so that requests for
  mirrored or archived data may be fulfilled by the primary system cache
  rather than requiring access to the secondary system.

French Abstract
  L'invention concerne un procede et un systeme de doublement et
  d'archivage d'une memoire de grande capacite. Une premiere memoire de
  grande capacite (20) et une seconde memoire de grande capacite (50) sont
  synchronisees de maniere a contenir les memes donnees. Un premier systeme
  (12) permet ensuite de faire le suivi de toute modification (60a-60c)

apportee a la premiere memoire de grande capacite, ces modifications
etant groupees periodiquement en fichiers de mise a jour de sorte que ces
groupages representent les modifications apportees a la premiere memoire
de grande capacite pendant un laps de temps qui s'acheve lorsque cette
premiere memoire de grande capacite se trouve dans un etat logiquement
coherent. Ces fichiers de mise a jour ne contiennent que les
modifications necessaires pour representer l'etat modifie de la premiere
memoire de grande capacite au moment de la mise a jour. Le premier
systeme transfere ensuite lesdits fichiers de mise a jour a un second
systeme, afin d'actualiser la seconde memoire de grande capacite en
fonction de la premiere memoire de grande capacite. En outre, le groupage
minimise la quantite d'informations devant etre transferees, et permet
donc l'utilisation d'un canal de communication a largeur de bande
relativement limitee. Enfin, les fichiers de mise a jour peuvent etre mis
en antememoire (70, 72, 74) par le premier systeme, de sorte que
l'antememoire de ce premier systeme peut satisfaire les demandes de
donnees doublees ou archivees sans qu'il soit necessaire d'acceder au
second systeme.

Fulltext Availability:
  Detailed Description

Detailed Description
...   consolidated changes. Second, the system and method of the present
   invention emphasize security of the **mirroring** and archiving by ensuring
   that the primary storage system is in a logically consistent state...

...that a primary mass storage system connected to a primary system and a
   secondary mass **storage   system** connected to a **secondary   system**
   contain identical data. This may be accomplished, for example, by making
   a complete **copy** of the primary mass **storage   system** to the
   secondary mass **storage   system** using either traditional backup
   techniques or traditional disk mirroring techniques. Once the primary
   mass **storage   system** and the **secondary** mass **storage   system**
   contain the same data, the present invention tracks the changes made to
   the primary mass...